CLAIMS

1 A method of producing a desired procollagen or derivative thereof in a system which co-expresses and assembles at least one further procollagen or derivative thereof wherein the gene(s) for expressing pro-α chains or derivatives thereof for assembly into the desired procollagen has or have been exogenously selected from natural pro-α chains or exogenously manipulated such as to express said pro-α chains or derivatives thereof with domians which have the activity of C- terminal propeptide domains but which will not co-assemble with the C- terminal propeptide of the pro-α chains or derivatives thereof that assemble to form the said at least one further procollagen or derivative thereof.

2 The method according to claim 1, wherein at least part of the gene(s) encode a recognition sequence which confers a selectivity on the assembly of pro-α chains into procollagens

3 The method according to claim 2, wherein the recognition sequence codes for the amino acid sequence GGQGSDPADV MQLTFLRLM STE

4 The method according to claim 3, wherein the recognition sequence codes for the amino acid sequence NVEGVTSKEM AMQLAFMRLL ANY

5 The method according to claim 2, wherein the recognition sequence codes for the amino acid sequence GDDNLAPNTA NVQMTFLRLL STE

6 The method according to claim 2, wherein the recognition sequence codes for the amino acid sequence GNPELPEDVL DVQLAFLRLL SSR

7. The method according to claim 2, wherein the recognition sequence codes for the amino acid sequence VDAEGNPVGV .VQMTFLRLL SAS.

8. The method according to claim 2, wherein the recognition sequence codes for the amino acid sequence GDHQSPNTAI .TQMTFLRLL SKE.

9. The method according to claim 2, wherein the recognition sequence codes for the amino acid sequence LDVEGNSINM .VQMTFLKLI TAS.

10. The method according to claim 2, wherein the recognition sequence codes for the amino acid sequence VDSEGSPVGV .VQITFLRLI SVS.

11. The method according to ~~any one of claims~~ 2 - 10, wherein the gene encodes for a pro-α chain ~~or derivative thereof~~ comprising a recognition sequence derived from one pro-α chain gene and an α chain domain derived from a different source.

12. The method according to ~~any one~~ of claims 2 - 10, wherein the gene encodes for a chimeric pro-α chain or derivative thereof formed from fragments of at least two different pro-α chains.

13. The method according to claim 11 ~~or~~ 12, wherein the gene encodes for a pro-α chain ~~or derivative thereof~~ comprising a C terminal propeptide domain from one type of pro-α chain and a α chain from another type of pro-α chain.

14. The method according to ~~any one of claims~~ 11 ~~to~~ 13, wherein the DNA molecule encodes for pro-α chains ~~or derivatives thereof~~ formed from combinations of fragments of pro-α1(I), pro-α2 (I), pro-α1 (II), pro-α1 (III), pro-α1 (V), pro-α2 (V), pro-α1 (XI) or pro-α2 (XI) pro-α chains.

15. The method according to claim 14, wherein the gene encodes a modified proα2(I) chain in which the recognition sequence of the proα2(I) chain has been substituted by the recognition sequence of a proα1(III) chain.

16. The method according to claim 1, wherein the gene contains base sequences encoding for a pro-α chain ~~or derivative thereof~~ comprising at least a first moiety having the activity of a procollagen C-propeptide and a second moiety selected from any one of an alien collagen α chain and non-collagen materials, the first moiety being attached to the second moiety.

17. The method according to ~~any preceding~~ claim, wherein the gene is incorporated within a vector.

18. The method according to claim 17, wherein the vector is a plasmid, cosmid or phage.

19. The method according to ~~any preceding~~, wherein the system is a host cell transfected with the gene.

20. The method according to claim 19, wherein the host cell is eukaryotic.

21. The method according to claim 20, wherein the host cell is a yeast, insect or mammalian cell

22. The method according to claim 21, wherein the host cell is a mammalian cell and selected from fibroblasts or cell lines derived therefrom. Baby Hamster Kidney cells, Mouse 3T3 cells, Chinese Hamster Ovary cells or COS cells.

23. The method according to ~~any one of claims~~ 1 - 19, wherein the system is a transgenic plant or animal.

24. The method according to claim 23, wherein the system is a transgenic animal and is a non-human placental mammal.

25. The method according to claim 24, wherein the placental mammal is any one of cattle, sheep, goats, water buffalo, camels or pigs.

26. The method according to claim 19, wherein the system is a transgenic animal and is a human in need of gene therapy.

27. The method according to claim 26, wherein the gene therapy is for treating osteogenesis imperfecta, Ehlers-Danlos syndrome or chrondrodysplasia.